

**REMARKS**

**DETAILED ACTION**

**Rejections Under 35 U.S.C. 102**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The Examiner has rejected Claims 1-2, 4-5, 9-12, 14-15, 19, 29-31, 33-34, and 38 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Stark, et al. Stark, et al disclose an apparatus for propelling a stream of particulate matter comprising all of the subject matter set forth in the claims above. A compressed gas source is delivered to a mixing chamber through a gas receiving port, and mixes with abrasive within the chamber, followed by discharge through a discharge conduit to strike a target material. The limitation of the particle-directing tube being "bendable" is a functional limitation which is deemed sufficiently broad to read on the discharge tube of Stark, et al. While not shown as having a bend, the material in Stark is certainly capable of being bent. The device of Stark et al is of a size and shape to allow the nozzle to be hand- held.

Applicant respectfully requests the Examiner reconsider the rejection of Claims 1-2, 4-5, 9-12, 14-15, 19, 29-31, 33-34, and 38 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Stark, et al.

Applicant has amended Independent Claims 1, 10 and 29 consistently with the Amendments made to the claims within the parent application (Application 08/517,379, filed August 21, 1995 now Patent 5,839,946, issued November 24, 1998), more specifically, the amendment filed on August 14<sup>th</sup>, 1997 (dated as received by the USPTO on August 18<sup>th</sup>, 1997).

Applicant has amended Independent Claims 1, 10, and 29 to include the limitation of "at least one of the gas receiving end wall and the discharge end wall abuts and is contiguous with the sidewall of the chamber." Stark's gas delivery conduit is not contiguous with the end cap.

The following are arguments presented within the Amendment respective to the parent application identified above:

Stark discloses a device for treating dental castings, and is generally entirely unsuitable for use as a "handheld apparatus for propelling particulate matter against a surface of a patient's tooth". Compare the preambles of the claims presented herein.

Stark's apparatus is intended for preparing the surface of a dental inlay for a tooth which is not in the patient's mouth, and requires a vacuum source and a compressor. See column 2, lines 18-19.

Stark lacks an elongate particle directing tube which is long and to prepare various surfaces of a patient's tooth, even back to the molars, at various angles.

Other differences include that Stark's gas delivery conduit (38) is free-floating within the chamber (31), and is not contiguous with the end cap (37).

The present invention teaches the integration of an inlet tube and cap components through unification of the inlet conduit with the chamber end wall section of the reservoir chamber; plus, the further integration of inlet conduit with the chamber wall portion of the reservoir chamber into a single structure. These improvements significantly enhance the manufacturability of the device by reducing the number of components, thus eliminating the required assembly of the inlet conduit with the chamber and significantly increasing the reliability of the device.

In addition, the present invention teaches the construction of a unitary mixing chamber which combines a reservoir and cap components into a single structure. Stark's reservoir is separate from the mixing chamber. The Applicant's innovative concept of integrating the two components removes the ability of the 'casual' user to easily refill the device. The lack of particulate matter in the mixing chamber renders the device useless. This limited operational period prevents the risk of cross-contamination between patients when used intra-orally. This benefit renders the device disposable and assures the use of a new device for every patient. This specific benefit has been recognized by the United States Food and Drug Administration

*Stark did  
uses an  
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source to  
abstain  
while  
Appl.  
uses only  
the abt.  
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in the  
chamber  
which is  
used up  
Appl's gas  
delivery  
conduit only  
'delivers' (no abt.)*

(FDA) as the first such approved disposable medical-dental device. The intended disposability of the apparatus necessitates that it preferably be inexpensive to manufacture.

The present invention is also distinguishable from Stark in that the extension of the discharge nozzle facilitates a longer acceleration period for the particles prior to their discharge from the nozzle tip. This is due to the extended period of time for which the particles are exposed to the accelerating air. The increase in particle velocity provides greater particle impact and a decrease in particle scatter; this is analogous to the higher bullet velocity and increased accuracy achieved with a rifle as compared to an equivalent caliber pistol.

The bendable discharge conduit of the present invention is also a major improvement over Stark. The ability to bend the nozzle eliminates Stark's requirement of having the target adjustable to various positions. To the contrary, it permits the re-direction of the particle stream through the adjustment of the nozzle tip orientation. Simply stated, the particle stream can be aimed at the target surface without the need to orient the entire device in the direction of the target surface. In fact, the applicant's teaching of an elongated omni-directional nozzle, permits the targeting of hard-to reach surfaces - such as actual teeth in the mouth - whereas Stark facilitates the use of the

device only on dental castings in lab conditions. The Applicant's device has been FDA approved for intra-oral dental patient use.

The FDA approval is based upon the distribution of a sterile apparatus for delivering particulate matter. Stark, et al. does not ensure sterilization of the apparatus and particulate matter.

The design of an enclosed apparatus allows for bulk sterilization making the apparatus a disposable, yet cost effective particulate matter delivery apparatus.

Stark illustrates an extremely short discharge conduit. Short objects are not susceptible to bending, willfully or not willfully.

Applicant believes the Independent Claims 1, 10, and 29 have been amended to incorporate the same patentable elements and limitations that are included in the patented claims of the parent application and now issued US Patent (Application 08/517,379, filed August 21, 1995 now Patent 5,839,946, issued November 24, 1998). Applicant respectfully directs the Examiner to proposed amendment of the Parent Application filed August 14, 1997 (Dated as received on August 18<sup>th</sup>, 1997).

Applicant respectfully directs the Examiner to Claim 10 of the parent application / Issued patent, USPN 5,839,946, Issued November 24, 1998. Stark was cited and overcome as prior art respective to the parent application. Applicant believes the three (3) Independent Claims subject to the rejection herein are similar in scope to the issued Claim 10 of the parent application with the additional limitation of "a discharge conduit disposed within the chamber and extending in fluid communication from the discharge port towards the gas receiving port and whereby the gas delivery conduit and the discharge conduit overlap" providing a distinct and patentable claim.

Applicant respectfully reiterates the requirement for consistency between examinations of like applications, wherein the claims in the parent application were allowed based upon the same arguments.

Applicant further reiterates the arguments respective to a handheld apparatus (with emphasis). Stark clearly teaches an apparatus that propels particulate matter into an enclosure (cup (7)) and that the enclosure requires vacuum to remove the excess particles from the enclosure. The vacuum and enclosure are included as components of the apparatus and required for Starks apparatus. Applicant respectfully directs the Examiner

to Column 2, Lines 3-6, "Cooperating with the structure just described, there is a reservoir (31) of generally tubular..." further re-iterating the required links between the particulate propelling device and the requirement for the enclosure. Applicant believes the limitation of a handheld device removes this limitation.

Applicant respectfully requests the Examiner further reconsider the submitted affidavit respective to a handheld apparatus based upon commercial success.

The Examiner has considered the Affidavit referencing Commercial Success as not convincing. Applicant respectfully directs the Examiner to several examples submitted with the Affidavit, each are resulting from external reviews of the product:

Exhibit F - The letter from Johnson and Johnson recognizing the "recent innovations and improvements to the device".

Exhibit K - A summary of various similar technologies presented by an outside party, one who would be considered an expert in the field. Applicant refers the Examiner to page 3 of 5 - "The first simple to use, disposable, air abrasive dental handpiece.... The two major drawbacks of air abrasion - threat of

*page 17 not found*

Independent Claims 1, 10, and 29. Claims 2, 4, 5 and 9 depend directly or indirectly from Independent Claim 1. Claims 11, 12, 14, 15 and 19 depend directly or indirectly from Independent Claim 10. Claims 30, 31, 33, 34, and 38 depend directly or indirectly from claim 29. Applicant believes the rejection of independent Claims 1, 10, and 29 have been overcome by amendments and remarks herein. Applicant earnestly requests the Examiner reconsider the rejection of Depending Claims 2, 4, 5, 9, 11, 12, 14, 15, 19, 30, 31, 33, 34, and 38 under 35 U.S.C. 102(b) as being clearly anticipated by Stark, et al. based upon the amendments and remarks respective to the Independent Claims herein.

### **Rejections Under 35 U.S.C. 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The Examiner has rejected Claims 6-8, 16-18, and 35-37 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al in view of Dougherty. Dougherty discloses the known use of color coding of containers to identify the contents therein, and further disclose the known use of an end cap (70) for sealing the discharge end of a chamber to prevent the contents



from being discharged. The use of color coding to help identify the contents of the chamber would have been obvious in view of Dougherty. Such color coding is used throughout industry for discriminating between similar looking containers, and for identifying their contents. To further provide an end cap at the distal end of the discharge conduit to prevent inadvertent discharge of the media from the chamber when not in use, would have been obvious in view of Dougherty.

Stark, et al. teaches an apparatus that is filled by the user, therefore, the since the apparatus is not pre-filled with particulate material, it would not be obvious to color code the apparatus to identify the particulate matter within. The Examiner rejected Claims 6-8, 16-18, and 35-37 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al in view of Dougherty. In order to color code an item, one would need a respective item to color code. Since the apparatus of Stark, et al. is filled and / or refilled by the end user, it would not be obvious to color code any feature on the Stark, et al. apparatus.

Claims 6, 8, 16, 18, 35, and 37 all reference the use of color coding to identify the particulate matter within the apparatus. Since Stark does not teach a pre-filled apparatus, it

would not be obvious to color code the apparatus as a means to identify the contents / particulate matter.

Stark, et al. teaches a removable closure cap 33 to fill the reservoir 31 with particulate matter. Since the apparatus is designed to be filled, it would not be obvious to provide an end cap at the distal end of the discharge conduit to prevent inadvertent discharge of the media from the chamber when not in use.

Applicant believes Independent Claims 1, 10, and 29 have been amended to overcome Stark, et al. Claims 6-8, 16-18, and 35-37 depend from Independent Claims 1, 10, and 29.

Applicant believes the rejected claims 6-8, 16-18, and 35-37 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al in view of Dougherty have been overcome by remarks herein as well as depending directly or indirectly from the Independent Claims 1, 10, and 29. Claims 6-8 depend directly or indirectly from Independent Claim 1. Claims 16-18 depend directly or indirectly from Independent Claim 10. Claims 35-37 depend directly or

indirectly from claim 29. Applicant believes the rejection of independent Claims 1, 10, and 29 in view of Stark, et al. have been overcome by amendments and remarks herein. Applicant earnestly requests the Examiner reconsider the rejection of depending claims 6-8, 16-18, and 35-37 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al in view of Dougherty based upon the amendments, remarks, and affidavit demonstrating Commercial Success respective to the Independent Claims herein.

5. The Examiner has rejected Claims 20-21, and 27-28 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al. in view of Schur, et al. In-as-much as Applicant is only entitled to the filing date of the CIP application for the new subject matter directed to the self-sealing mechanism recited in claim 20, the Schur, et al. reference is deemed to constitute prior art against this set of claims. Schur, et al. disclose a self-sealing one-way valve located within the chamber upstream of the gas receiving port. To provide such a one-way valve in the chamber of Stark, et al. upstream of the gas receiving port, to prevent backflow of media would have been obvious in view of Schur, et al.

Applicant has amended Independent Claim 20 "... a non-removable, self sealing mechanism contiguous to the sidewall of the chamber ...".

Schur, et al. teaches a removable self-sealing valve. Applicant's invention teaches a non-removable, self sealing valve, wherein as the apparatus is provided pre-filled and disposable, it is not advantageous to provide a removable, self sealing valve. Applicant's invention removes the requirement for removing an end cap prior to use. This provides a significant advantage over Schur, et al. wherein the matter remains within the mixing chamber while the user connects the gas supply to the apparatus.

Applicant believes the rejected claims 20-21, and 27-28 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al. in view of Schur, et al. have been overcome by the amendment to Independent Claim 20 and remarks herein. Applicant respectfully requests the Examiner reconsider the rejection of Claims 20-21, and 27-28 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al. in view of Schur, et al.

6. The Examiner has rejected Claims 22-25 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al. in view of Schur, et al. and further in view of Daubenberger, et al. Schur, et al. teaches to provide a check-valve in a location between the gas receiving port and the mixing chamber to prevent backflow of the abrasive media. Daubenberger, et al. disclose a check-valve

for one-way flow of media through a passageway comprising a hemispherical-shaped flexible material having a slit which closes to prevent backflow of media through the valve. To provide such a conventional hemispherical-shaped check-valve in the location taught by Schur, et al. to prevent backflow of media while minimizing the number of moving parts prone to wear, would have been obvious in view of Daubenberger, et al.

Applicant believes the rejection of Independent Claim 20 over Stark, et al. in view of Schur, et al. has been overcome by the amendment herein. Claims 22-25 depend from Independent Claim 20. Applicant believes the rejected claims 22-25 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al. in view of Schur, et al. and further in view of Daubenberger have been overcome by the amendment to Independent Claim 20 and remarks herein. Applicant respectfully requests the Examiner reconsider the rejection of Claims 22-25 under 35 U.S.C. 103(a) as being unpatentable over Stark, et al. in view of Schur, et al. and further in view of Daubenberger et al.

7. Applicant's arguments filed June 30, 2003 have been fully considered but they are not persuasive. With regard to applicant's new limitations of the device being "designed to be hand-held", it is clear from the drawings in Stark et al that the device is of a size and shape which would permit hand-held use. Note the relative size of the chamber in figure 1 as compared to a typical molar, also shown in figure 1. Further, with regard to the limitation of the gas delivery

conduit and the discharge conduit overlapping, such configuration is shown at least in figure 1 of Stark et al. With regard to independent claim 20 Schur disclose the location and structure of a check valve claimed in claim 20. The Schur patent predates the filing date of Applicant's CIP subject matter by more than one year, thus applicant's affidavit is not deemed sufficient to overcome the art of record. With regard to applicant's affidavit of commercial success, The affidavit has been considered but not found convincing. There are a multitude of possible reasons for commercial success which may be unrelated to obviousness, such as advertising and marketing of a product, and it is not clear that commercial success in this instance is directly attributable to non-obviousness.

### **CONCLUSIONS**

Applicants believe the amendments submitted herein, remarks, affidavit (Commercial success), and respective exhibits submitted herein provide a complete response to the Office Action mailed on August 12, 2003. Claims 1, 2, 4-12, 14-15, 27-31, and 32-42 remain in the application. Applicant believes the remaining claims are in condition for allowance. Applicant earnestly requests the Examiner reconsider the rejections of claims 1, 2, 4-12, 14-15, 27-31, and 32-42.

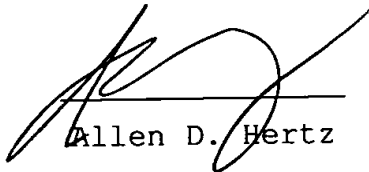
The Examiner has established a shortened statutory period of three (3) months for response to the Office Action. Applicants have responded to the Office Action on or before November 12,

2003 with a proper certificate of correspondence. Therefore, the Applicants believe the response is considered timely and no additional fees are required. Applicant believes the response provided is complete. Applicant believes the amendments have not introduced any new matter.

The present application, after entry of this amendment, comprises thirty-eight (38) claims, including four (4) independent claims. Applicant has already submitted sufficient fees with the original application for thirty-eight (38) claims, including four (4) independent claims. Applicant, therefore, believes that no additional fee respective to claims is currently due.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, a telephone call to the Agent of Record (Allen Hertz) at (561) 883-0115 (Office) (Please leave a message) or (561) 716-3915 (Cell phone) is respectfully solicited.

Respectfully submitted,



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